ADMINISTRATIVE NOTE:
NEW REQUIREMENTS/PROCEDURES

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BAA 04-32 PROPOSER INFORMATION PAMPHLET

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The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will be posted directly to FedBizOpps.gov, the single government point-of-entry (GPE) for Federal government procurement opportunities over $25,000. The following information is for those wishing to respond to the Broad Agency Announcement.

SAPIENT, SOL BAA 04-32, Proposals Due: Initial Closing: August 27, 2004, Final Closing: July 8, 2005, POC: Dr. Jonathan M. Smith, DARPA/IPTO; FAX: (703) 741-7804

PROGRAM OBJECTIVES AND DESCRIPTION. The Defense Advanced Research Projects Agency (DARPA) is soliciting proposals for DARPA's Information Processing Technology Office (IPTO) to perform research, design, development and testing to support the Situation-Aware Protocols In Edge Network Technologies (SAPIENT) program.

Network-centric operations use applications which enhance the ability to rapidly orient, observe, decide and act. The challenges of an increasing number of networked applications and the complexity of the networks which interconnect them have been met in part by the internetworking protocol architecture (IP) and its transmission control protocol (TCP). A series of incremental optimizations of the TCP transport protocol for the commonly encountered cases of delay, throughput, congestion and link errors for research and commercial environments has led to a protocol which is often ill-suited to the challenges encountered in military operations. For example, the purposeful information-hiding inherent in the TCP/IP layering architecture has the consequence of amplifying the effects of link and network impairments on applications, such as grossly reducing throughput or increasing latency as a consequence of error losses.

This has rarely been an issue in the commercial Internet, since errors occur infrequently, network capacity is plentiful and delays are 10s of milliseconds at worst. In contrast, the edge of military networks is characterized by mobility and wireless interconnection, with long delays when satellite networks are used for far-flung operations. For example, a network route might include any or all of satellite links, airborne links and links which are part of a mobile ad-hoc network, and the network edge might consist of small units operating with a vehicle or dismounted. Experience suggests that conventional protocols fare poorly in such extreme network conditions, providing inadequate service for key applications. As applications are frequently developed under operating assumptions similar to the network protocol, the performance of applications in the network conditions actually encountered in military networks may be inadequate.

The Situation-Aware Protocols In Edge Network Technologies (SAPIENT) program seeks to address these deficiencies with a new generation of cognitive protocol architectures. SAPIENT architectures are aware of application requirements and network conditions, represent this awareness with a knowledge base that is updated based on both specification and observation, and automatically adapt the protocol to its operating environment. SAPIENT will bring to bear attributes of human cognition such as learning and self-improvement to the automated construction of network protocols. The overarching goals of the SAPIENT program are to use these cognitive attributes to dramatically reduce the effect of network impairments on applications and to show a positive trend in this capability over time, as new situations are encountered and learned. Desired capabilities include interoperable knowledge representations and rapid incorporation of new knowledge about applications, network conditions, and building blocks from which new protocols can be constructed.

The approach of this program is to combine cognitive techniques (such as goal-based planning, knowledge representation and machine learning) with architectures for flexible protocol configuration (such as reconfigurable network stacks, protocol boosters, micro-protocol architectures and other extensible network architectures). The central goal of this program is to create a new generation of adaptive systems which achieve new levels of functionality through "situation-awareness."

Conventional protocol architectures are limited in their ability to adapt as a result of limited knowledge of their operating environment, as well as assumptions (*e.g.*, a fixed timeout parameter) embedded in the protocol implementations. It is the hypothesis of the SAPIENT effort that more specific knowledge of application requirements and network conditions would allow a more appropriate protocol to be deployed. At the same time, the wide range of application requirements and network conditions would create an explosion in the number of protocols required for coupling each application appropriately to the many network conditions which can exist.

One solution to this problem is to have a very flexible "one-size-fits-all" protocol operating at network end-points, such as the TCP reliable stream protocol discussed earlier. A second approach is to embed application-specific network-adaptation algorithms in each application. The former approach is challenged by both new applications with unexpected behavior as well as network conditions inconsistent with the design assumptions. While the latter approach gains more information about the application requirements, it is limited by the designer's assumptions about network conditions unless these assumptions are minimal (as, *e.g.*, with electronic mail). In addition, software engineering and software deployment concerns inhibit the adaptation of these architectures to new situations.

The cognitive technologies we seek will permit situation knowledge to be inserted by operators, exchanged amongst systems and learned in new situations by operating dynamically composed protocols in reaction to network conditions as they are actually encountered.

There are three major research thrusts in Phase I of the program. These areas are:

- Knowledge Representation

- Selection and Composition
- Learning

The knowledge representation effort will determine representations of knowledge appropriate for describing situations encountered in operational networks and in enabling machine response to these situations, including automated learning of effective responses. The selection and composition effort will be focused on exploiting the knowledge of the situation to construct a functioning network protocol adapted to the situation. It is expected, although not required, that a form of symbolic reasoning such as a planning system will be used to address the selection and composition process. The learning effort is focused on automatic enhancement of the knowledge base through recording of situation/response/result information that can be used towards a self-improving adapted system. Successful proposals will address all of these issues. In some cases this may require team efforts involving multiple institutions, including universities. Where necessary, such teaming is strongly encouraged.

Assessment and validation of situation-aware protocols will be carried out to determine their efficacy in conditions experienced at the edge of DoD networks, which as noted previously are characterized by challenging link conditions such as mobility, ad-hoc routing, long round-trip times between end-points, extreme error conditions and link blockage. Among the scientific contributions of this program will be the creation of a practical framework in which the effect of protocol choices upon applications in impaired networks can be quantified.

The first phase of this effort is planned to be 18 months long. If the research effort is progressing successfully, two additional phases, of 18 months and 12 months respectively, are anticipated. DARPA plans to hold an Industry Day for qualified proposers, the details of which will be posted as a revision to this BAA.

Phase I program goals are to demonstrate that situation awareness benefits networked applications which today, using conventional protocol architectures such as TCP, are severely affected by network impairments.

A testbed designed and operated by an Independent Test and Evaluation (ITE) entity will measure performer systems using real applications operating with realistic link conditions. The target measure of success at the end of Phase I of the SAPIENT program will be that the application impairment (reduction in throughput, increase in latency, or unavailability) is no more than five (5) times worse than the analogous impairment of the network. This ratio must be achieved within one hundred and twenty (120) seconds from the time the network impairment is first encountered, and it is expected that the system will continue its self-improvement as time progresses.

Phase II program goals are to demonstrate that the benefit of situation awareness extends to a number of important operating environments, including mobile satellite communications as well as the applications used in Phase I. The testbed operated by the ITE entity will be extended with both a satellite-on-the-move (SOTM) capability, and with additional applications. The “best of breed” of the systems in Phase I of the program will be extended to these new environments, while reducing the multiplicative effect of network impairments on

applications to a factor of three (3). For Phase II, the desired improvement must occur within a limited time interval of two (2) seconds. Note that this latter goal for learning performance is a factor of 60 improvement over the Phase I capability; it is expected that a major goal of Phase II will be successful systems integration and refinement towards DARPA's desired capabilities for SAPIENT (including the ability to operate with a broader range of networks and applications), as well as accelerated learning technologies resulting from their specialization to the situation-aware protocol selection and composition task.

The ultimate goal at the end of Phase III is that the effect of network impairments on applications is multiplied by no more than two (2) times the effect of the basic network impairment (*e.g.*, link blockage, error bursts/congestion loss, or delay). The "final exam" for SAPIENT will be a structured traversal of a real or emulated urban environment in which networked applications are used by competing teams to locate pre-placed "flags." The structure will presume that the SAPIENT program goal of limiting the effects of network impairments on applications to a factor of two (2) *has been achieved* and will be timed accordingly. It will also be presumed that learning will occur within 200 milliseconds. Notably, traversal of an urban environment is characterized by mobility and challenging wireless conditions, including blockage of satellite, mobile and airborne communications capabilities.

Proposals should be for a base period of 18 months (Phase I), and are encouraged to provide for optional efforts to pursue efforts in Phase II (18 months) and Phase III (12 months).

Offerors must explicitly state in their proposals, a plan for providing deliverables for installation, training, manuals, *etc.* required for evaluation by the Independent Evaluation Team's testbed facility, as well as travel costs and costs for collaborating with the ITE entity. Offerors should support the technical feasibility of their approach and discuss the future development of their approaches, validation and technology transition strategies.

TEST AND EVALUATION. Performers will test and evaluate their technologies using a testbed developed for this program and operated by an Independent Evaluation Team, and results will be reported at periodic program review meetings with performers and at PI meetings, which will be held at program kickoff and at least once annually thereafter. To enable this testing and evaluation, performers will provide software distributions and will document all test and evaluation choices and procedures (hardware, software environment, scenario, *etc.*) with sufficient clarity for a third party to replicate the evaluations.

PROGRAM SCOPE DARPA. Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific strategies listed above, and alternative visions will be considered. However, proposals should be for research that substantially contributes towards the goals stated. Specifically excluded is research that primarily results in minor evolutionary improvement to the existing state of practice.

SECURITY CONSIDERATIONS. This program will be run at the U.S. TOP SECRET/NOFORN level of classification. A program Security Classification Guide (SCG)

for this program is available on request and required for guidance on proposal preparation. Performers must have required U.S. personnel clearances, cleared facilities, storage, and processing capabilities to bid on this solicitation as defined in the program SCG. Please see administrative contact information in this PIP for details on receiving the SCG.

Performers should include a plan for secure communications between team members and the government to include secure voice and data as necessary. Plans should detail what equipment will be requisitioned or purchased, the timeframes for obtaining and setting up secure communications networks and contingency plans. Proposals containing classified information from another sponsor must seek prior approval from sponsor before including the information. Instructions for sending classified material to DARPA are included in this PIP.

GENERAL INFORMATION

Proposals not meeting the format described in this pamphlet may not be reviewed. Proposals **MUST NOT** be submitted by fax or e-mail; any so sent will be disregarded. This notice, in conjunction with the BAA 04-32 FBO Announcement and all references, constitutes the total BAA. A Frequently Asked Questions (FAQ) list may be provided. The URL for the FAQ will be specified on the DARPA/IPTO BAA Solicitation page. No additional information is available, nor will a formal Request for Proposal (RFP) or other solicitation regarding this announcement be issued. Requests for same will be disregarded. All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

ELIGIBILITY

This BAA solicits proposals from all interested and qualified sources. All participants and/or individuals must meet security clearance requirements as determined in the program Security Classification Guide (SCG) for the Situation-Aware Protocols In Edge Network Technologies (SAPIENT) program and comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Laws, and other governing statutes that would be applicable under the circumstances. The SCG for the Situation-Aware Protocols In Edge Network Technologies (SAPIENT) program is authoritative on all security requirements and guidance. In the event of discrepancies between information presented in this announcement and the SCG, the SCG takes precedence.

SUBMISSION PROCESS

This Broad Agency Announcement (BAA) requires completion of a **BAA Cover Sheet** for each Proposal prior to submission. This cover sheet can be accessed at the following URL:

http://www.dyncorp-is.com/BAA/index.asp?BAAid=04-32

After finalizing the **BAA Cover Sheet**, the proposer must print the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and attaching it to every copy. The Confirmation Sheet should be the first page of the Proposal. If a proposer intends on submitting more than one Proposal, a unique UserId and password must be used in creating each BAA Cover Sheet. Failure to comply with these submission procedures may result in the submission not being evaluated.

Proposers must submit the original and **4** copies of the full proposal *and* **2** electronic copies (i.e., **2** separate disks) of the full proposal (in PDF or Microsoft Word 2000 for IBM-compatible format on a 3.5-inch floppy disk, 100 MB Iomega Zip disk or cd). **Mac-formatted disks will not be accepted**. Each disk must be clearly labeled with BAA 04-32, proposer organization, proposal title (short title recommended) and "Copy <n>___ of **2.**" The full proposal (original and designated number of hard and electronic copies) must be submitted in time to reach DARPA by 12:00 PM (ET) **27 August, 2004,** in order to be considered during the initial evaluation phase. However, **BAA 04-32, SAPIENT** will remain open until 12:00 NOON (ET) **8 July, 2005.** Thus, proposals may be submitted at any time from issuance of this BAA through **8 July, 2005**. While the proposals submitted after the **27 August, 2004,** deadline will be evaluated by the Government, proposers should keep in mind that the likelihood of funding such proposals is less than for those proposals submitted in connection with the initial evaluation and award schedule. DARPA will acknowledge receipt of submissions and assign control numbers that should be used in all further correspondence regarding proposals. Additionally, see the SECURITY INFORMATION section, below, for sending any classified materials, to include proposals.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements. Input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants /experts who are also bound by appropriate non-disclosure requirements. However, non-Government technical consultants/experts will not have access to proposals that are labeled by their offerors as "Government Only." Use of non-government personnel is covered in FAR 37.203(d).

REPORTING REQUIREMENTS/PROCEDURES: The Award Document for each proposal selected and funded will contain a mandatory requirement for submission of unclassified DARPA/IPTO Quarterly Status Reports and an Annual Project Summary Report. These reports, described below, will be electronically submitted by each awardee under this BAA via the DARPA/IPTO Technical – Financial Information Management System (T-FIMS).

The T-FIMS URL will be furnished by the government upon award. Detailed data requirements can be found in the Data Item Description (DID) DI-MISC-81612A available on the Government's ASSIST database (http://assist.daps.dla.mil/quicksearch/). Sample instructions that specify how information in the DID may be collected (content and frequency

requirements) can be found in Appendix A. An outline of T-FIMS report requirements is as follows:

(a) Status Report: Due at least three (3) times per year – Jan, Apr, & Oct

1) Technical Report – refer to the SAPIENT Security Classification Guide and have a secure means to transmit anything classified.

a) Project General Information
b) Technical Approach
- Accomplishments
- Goals
- Significant changes / improvements

c) Deliverables
d) Transition Plan
e) Publications
f) Meetings and Presentations
g) Project Plans
h) Near term Objectives

2) Financial Report
3) Project Status / Schedule

(b) Project Summary (PSum): Due once each fiscal year in July

1) All Sections of the Status Report
2) QUAD Chart
a) Visual Graphic
b) Impact
c) New Technical Ideas – must be unclassified. Refer to the SAPIENT Security Classification Guide.
d) Schedule

PROPOSAL FORMAT

Proposals shall include the following sections, each starting on a new page (where a "page" is 8-1/2 by 11 inches with type not smaller than 12 point) and with text on one side only. The submission of other supporting materials along with the proposal is strongly discouraged. Sections I and II (excluding the submission cover/confirmation sheet and section M) of the proposal shall not exceed **the total of the** maximum page lengths for each section as shown in braces { } below.

Section I. Administrative

1. The BAA Confirmation Sheet {1 page} described under "Submission Process" will include the following:
   A. BAA number;
   B. Technical topic area;
   C. Proposal title;

D. Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address;
E. Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address;
F. Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant;
G. Contractor's type of business, selected from among the following categories: "WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

2. {1} Official transmittal letter.
3. {No page limit} Table of Contents. The Table of Contents should be keyed to the page numbers of the proposal sections.
4. {5} A slide summary (five slides maximum) of the proposal in PowerPoint chart format that succinctly indicates the main objective, research challenges addressed, approach for overcoming challenges, key innovations, expected impact, cost, and other unique aspects of the proposal.

Section II. Detailed Proposal Information

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

[IMPORTANT NOTE: WITH THE EXCEPTION OF E, C THROUGH H HAVE BEEN REVISED.] Page-counts are maximums.

A. {1 Page} Innovative claims for the proposed research.
This page is the centerpiece of the proposal and should succinctly describe the unique proposed contribution.

B. {1 Page} Proposal Roadmap
The roadmap provides a top-level view of the content and structure of the proposal. It contains a synopsis (or "sound bite") for each of the nine areas defined below. It is important to make the synopses as explicit and informative as possible. The roadmap must also cross-reference the proposal page number(s) where each area is elaborated. The nine roadmap areas are:

1. Main goals of the proposed research (stated in terms of new, operational capabilities for assuring that critical information is available to key users).

2. Tangible benefits to end users (i.e., benefits of the capabilities afforded if the proposed technology is successful).

3. Critical technical barriers (i.e., technical limitations that have, in the past, prevented achieving the proposed results).

4. Main elements of the proposed approach.

5. Rationale that builds confidence that the proposed approach will overcome the technical barriers. ("We have a good team and good technology" is not a useful statement.)

6. Nature of expected results (unique/innovative/critical capabilities to result from this effort, and form in which they will be defined).

7. The risk if the work is not done.

8. Criteria for scientifically evaluating progress and capabilities on an annual basis.

9. Cost of the proposed effort for each performance year.

C. {2 Pages} Research Objectives:

1. Problem Description. Provide concise description of problem area addressed by this research project.

2. Research Goals. Identify specific research goals of this project. Identify and quantify expected performance improvements from this research. Identify new capabilities enabled by this research. Identify and discuss salient features and capabilities of developmental hardware and software prototypes**.**

3. Expected Impact. Describe expected impact of the research project, if successful, to problem area.

D. Technical Approach:

1. {12 Pages} Detailed Description of Technical Approach. Provide detailed description of technical approach that will be used in this project to achieve research goals
2. {2 Pages} Comparison with Current Technology. Describe state-of-the-art approaches and the limitations within the context of the problem area addressed by this research.

E. {3 Pages} Statement of Work (SOW) written in plain English, outlining the scope of the effort and citing specific tasks to be performed, references to specific subcontractors if applicable, and specific contractor requirements.

F. Schedule and Milestones:

1. {1 Page} Schedule Graphic. Provide a graphic representation of project schedule including detail down to the individual effort level. This should include but not be limited to, a multi-phase development plan, which demonstrates a clear understanding of the proposed research; and a plan for periodic and increasingly robust experiments over the project life that will show applicability to the overall program concept. Show all project milestones. Use absolute designations for all dates.

2. {3 Pages} Detailed Individual Effort Descriptions. Provide detailed task descriptions for each individual effort and/or subcontractor in schedule graphic.

G. {2 Pages} Deliverables Description. List and provide detailed description for each proposed deliverable. Include in this section all proprietary claims to results, prototypes, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. The offeror must submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights (see DFARS 227.) Specify receiving organization and expected delivery date for each deliverable.

H. {2 Pages} Technology Transition and Technology Transfer Targets and Plans. Discuss plans for technology transition and transfer. Identify specific military and commercial organizations for technology transition or transfer. Specify anticipated dates for transition or transfer.

I. {3 Pages} Personnel and Qualifications. List of key personnel, concise summary of their qualifications, and discussion of proposer's previous accomplishments and work in this or closely related research areas. Indicate the level of effort to be expended by each person during each contract year and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity.

J. {1 Page} Facilities. Description of the facilities that would be used for the proposed effort. If any portion of the research is predicated upon the use of Government Owned Resources of any type, the offeror shall specifically identify the property or other resource required, the date the property or resource is required, the duration of the requirement, the source from which the resource is required, if known, and the impact on the research if the resource cannot be provided. If no Government Furnished Property is required for conduct of the proposed research, the proposal shall so state.

K. {1 Page} Experimentation Plans. Offerors should identify experiments to test the hypotheses of their approaches and be willing to work with other contractors in order to develop joint experiments in a common testbed environment. Offerors should expect to participate in teams and workshops to provide specific technical background information to DARPA, attend semi-annual Principal Investigator (PI) meetings, and participate in numerous other coordination meetings via teleconference or Video Teleconference

(VTC). Funding to support these various group experimentation efforts should be included in technology project bids.

L. {5 Pages} Cost. Cost proposals shall provide a detailed cost breakdown of all direct costs, including cost by task, with breakdown into accounting categories (labor, material, travel, computer, subcontracting costs, labor and overhead rates, and equipment), for the entire contract and for each **calendar year**, **divided into quarters**. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as contract options with separate cost estimates for each.

M. Contractors requiring the purchase of information technology (IT) resources as Government Furnished Property (GFP) **MUST** attach to the submitted proposals the following information:

1. A letter on Corporate letterhead signed by a senior corporate official and addressed to **Dr. Jonathan M. Smith,** DARPA/IPTO, stating that you either can not or will not provide the information technology (IT) resources necessary to conduct the said research.

2. An explanation of the method of competitive acquisition or a sole source justification, as appropriate, for each IT resource item.

3. If the resource is leased, a lease purchase analysis clearly showing the reason for the lease decision.

4. The cost for each IT resource item.

N. {1 Page} Quad Chart. Offerors are required to submit a one page summary quad chart in accordance with Appendix B. Special consideration should be given to the SAPIENT Security Classification Guide when determining the content to depict in the quad chart.

IMPORTANT NOTE: IF THE OFFEROR DOES NOT COMPLY WITH THE ABOVE STATED REQUIREMENTS, THE PROPOSAL WILL BE REJECTED.

Awards made under this BAA may be subject to the provisions of the Federal Acquisition Regulation (FAR) Subpart 9.5, Organizational Conflict of Interest. All offerors and proposed subcontractors must affirmatively state whether they are supporting any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports, and identify the prime contract number. Affirmations should be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest, as that term is defined in FAR 2.101, must be disclosed in Section II, I. of the proposal, organized by task and year. This disclosure shall include a description of the action the Contractor has taken, or proposes to take, to avoid, neutralize, or mitigate such conflict.

Section III. Additional Information

A bibliography of relevant technical papers and research notes (published and unpublished) that document the technical ideas, upon which the proposal is based, may be included in the proposal submission. Provide one set for the original full proposal and one set for each of the **4** full proposal hard copies. Please note: The materials provided in this section, and submitted with the proposal, will be considered for the reviewer's convenience only and not considered as part of the proposal for evaluation purposes.

EVALUATION AND FUNDING PROCESSES

Proposals will not be evaluated against each other, since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in PROPOSAL FORMAT Section I and Section II (see below). Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Evaluation of proposals will be accomplished through a scientific review of each proposal using the following criteria, which are listed in descending order of relative importance:

(1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable and compelling. The technical concepts should be clearly defined and developed. The technical approach must be sufficiently detailed to support the proposed concepts and technical claims. Evaluation will also consider the effectiveness of the system integration and management plan.

(2) Innovative Technical Solution to the Problem: Offerors should apply new and/or existing technology in an innovative way that supports the objectives of the proposed effort. The proposed concepts and systems should show breadth of innovation across all the dimensions of the proposed solution. Offerors must also specify quantitative experimental methods and metrics for measuring progress of the effort.

(3) Potential Contribution and Relevance to DARPA/IPTO Mission: The offeror must clearly address how the proposed effort will meet the goals of the undertaking and how the proposed effort contributes to significant advances to DARPA/IPTO.

(4) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.

(5) Plans and Capability to Accomplish Technology Transition: The offeror should provide a clear strategy and plan for transition to military forces (and commercial sector, where applicable). Offerors should consider involving potential military transition partners, as appropriate, in any proposed experiments, tests and demonstrations. Offerors should also provide a plan for transition of appropriate technology components and information to the user community.

(6) Cost Realism: The overall estimated costs should be clearly justified and appropriate for the technical complexity of the effort. Evaluation will consider the value of the research to the government and the extent to which the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

The Government reserves the right to select all, some, or none of the proposals received in response to this solicitation and to make awards without discussions with offerors; however, the Government reserves the right to conduct discussions if the Source Selection Authority later determines them to be necessary. Proposals identified for funding may result in a contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. If warranted, portions of resulting awards may be segregated into pre-priced options.

The administrative address for this BAA is:

Mail to: DARPA/IPTO
ATTN: BAA 04-32
3701 N. Fairfax Drive
Arlington, VA 22203-1714

SECURITY INFORMATION

Contract award is expected to result in access to classified U.S. TOP SECRET/NOFORN information. A DD Form 254 will be issued upon contract award. If you choose to submit a classified proposal, using information from another government effort, you must first receive permission of the Original Classification Authority (OCA) to use their information in replying to this BAA, and cite and submit the applicable OCA classification guide(s) to ensure that the proposal is protected appropriately.

A Security Classification Guide (SCG) from DARPA is available to eligible contractors in order to properly protect any information submitted into this program solicitation. To obtain a copy of the Security Classification Guide, (which is For Official Use Only), please contact:

Eugene E. McGoldrick
Government Security Officer, Situation-Aware Protocols In Edge Network Technologies
703-526-4747
emcgoldrick@darpa.mil

Comments about the SCG should be directed to Eugene E. McGoldrick [emcgoldrick@darpa.mil].

Collateral Classified Data: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the DoD Overprint to the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another

original classification authority. Classified information at the Confidential and Secret level may only be mailed via U.S. Postal Service (USPS) Registered Mail or U.S. Postal Service Express Mail (USPS only; not DHL, UPS or FedEx). All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the as-signed classification and addresses of both sender and addressee. The inner envelope shall be addressed to:

Defense Advanced Research Projects Agency (DARPA)
ATTN: **BAA04-32**, DARPA/IPTO, Dr. Jonathan M. Smith
3701 North Fairfax Drive, Suite 838
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency (DARPA)
Security & Intelligence Directorate, Attn: CDR
3701 North Fairfax Drive, Suite 838
Arlington, VA 22203-1714

All Top Secret materials should be hand carried via an authorized, two-person courier team to the DARPA CDR.

Appendix A - Sample Instructions for Application of DiD MI-DISC-81612A or Analog

REMARKS.

- REPORTING PERIOD TERMINOLOGY
  - QUARTERLY REPORTING PERIODS:
    - JUL-SEP: COVERS PERFORMANCE FROM 1 JULY - 30 SEPTEMBER
    - OCT-DEC: COVERS PERFORMANCE FROM 1 OCTOBER - 31 DECEMBER
    - JAN-MAR: COVERS PERFORMANCE FROM 1 JANUARY - 31 MARCH
    - APR-JUN: COVERS PERFORMANCE FROM 1 APRIL - 30 JUNE

- ELECTRONIC SUBMISSION. THE CONTRACTOR SHALL ACCESS THE DARPA EXTRANET REPORTING PAGE TO BE FURNISHED AND ELECTRONICALLY SUBMIT ALL REQUIRED REPORTING INFORMATION ACCORDING TO ALL SPECIFICATIONS BELOW.

- POST-AWARD INITIAL SUBMISSION REQUIREMENT: SUBMIT WITHIN 30 CALENDAR DAYS OF AWARD ALL DATA ITEMS IN 1. PROJECT INFORMATION.

- MINIMAL INITIAL REPORT: IF AWARD OCCURS WITHIN 30 CALENDAR DAYS OF END OF QUARTERLY REPORTING PERIOD SUBMIT DATA ITEMS 2.10 ISSUES OR CONCERNS AND 3.2 PROJECT PLANS, ONLY, IN FIRST REPORT. DUE DATE FOR MINIMAL FIRST REPORT IS WITHIN 15 CALENDAR DAYS OF END OF QUARTERLY REPORTING PERIOD THAT INCLUDES AWARD DATE.

- GENERAL QUARTERLY SUBMISSION REQUIREMENTS
  - FREQUENCY: BLOCK 10. INPUT FOUR (4) TIMES YEARLY, ONCE FOR EACH OF THE QUARTERLY REPORTING PERIODS CITED ABOVE, FOR DURATION OF CONTRACT.
  - REPORTING PERIOD: BLOCK 11. REPORT ON PERFORMANCE DURING THE MOST RECENT QUARTERLY REPORTING PERIOD.
  - DUE DATE: BLOCK 12 AND BLOCK 13. SUBMIT WITHIN FIFTEEN (15) CALENDAR DAYS AFTER THE END OF MOST RECENT QUARTERLY REPORTING PERIOD, BEGINNING XXXXX, I.E.
    - FOR REPORTING PERIOD JUL-SEP, DUE DATE IS OCTOBER 15

- FOR REPORTING PERIOD OCT-DEC, DUE DATE IS JANUARY 15
- FOR REPORTING PERIOD JAN-MAR, DUE DATE IS APRIL 15
- FOR REPORTING PERIOD APR-JUN, DUE DATE IS JULY 15

- QUARTERLY CONTENT REQUIREMENTS
  - IF CURRENT SUBMISSION IS FINAL SUBMISSION FOR THIS CDRL ITEM INCLUDE ALL PARAGRAPHS OF REFERENCED DATA ITEM DESCRIPTION (DID), ELSE
    - FOR THE APR-JUN QUARTERLY REPORT, INCLUDE ALL PARAGRAPHS OF REFERENCED DID
      FOR 3.2.1. PLANNED ACTIVITIES, IN ADDITION TO REPORTING PLANNED ACTIVITIES FOR NEXT QUARTER, INCLUDE A TOP-LEVEL BULLET LIST OF PLANNED ACTIVITIES FOR TIME PERIOD BEGINNING 1 OCTOBER OF CURRENT YEAR AND ENDING 31 DECEMBER OF NEXT YEAR.
    - FOR ALL OTHER QUARTERLY REPORTS, INCLUDE ALL PARAGRAPHS OF THE REFERENCED DID EXCEPT FOR DID PARAGRAPH 1.2 PROJECT DESCRIPTION (AND ALL SUB-ELEMENTS OF 1.2)

- GENERAL MONTHLY SUBMISSION REQUIREMENTS
  - FREQUENCY: BLOCK 10. INPUT TWELVE (12) TIMES YEARLY FOR DURATION OF CONTRACT.
  - REPORTING PERIOD: BLOCK 11. REPORT ON PERFORMANCE DURING PREVIOUS MONTH.
  - DUE DATE: BLOCK 12 AND BLOCK 13. SUBMIT WITHIN FIFTEEN (15) CALENDAR DAYS AFTER END OF PREVIOUS MONTH.

- MONTHLY CONTENT REQUIREMENTS
  - FOR DURATION OF CONTRACT, SUBMIT REFERENCED DID ITEMS 2.3 INCURRED EXPENSES THIS PERIOD AND 2.4 INCURRED EXPENSES TO DATE, AS LUMP SUM TOTAL ONLY.

- CONCURRENT SUBMISSION REQUIREMENTS
  - FOR DURATION OF CONTRACT SUBMIT 2.5 INVOICES THIS PERIOD AND 2.6 INVOICES TO DATE, AS INVOICES ARE SUBMITTED FOR PAYMENT. PERIOD IN 2.5 DENOTES TIME SINCE LAST SUBMISSION OF INVOICE(S).

- FORMAT
  - GENERAL FORMAT INSTRUCTIONS: COMPLY WITH ALL INSTRUCTIONS DELINEATED ON THE DARPA EXTRANET REPORTING PAGE.

- SPECIAL FORMAT INSTRUCTIONS: SUBMIT 3.1.7, PUBLICATIONS THIS PERIOD, IN ADOBE ACROBAT (PDF) FILE FORMAT. SUBMIT 1.2.3.1, SCHEDULE GRAPHIC IN EITHER POWERPOINT (PPT), JPG, TIFF, OR PDF FILE FORMAT. SUBMIT 1.2.6, QUAD-CHART, IN MICROSOFT POWERPOINT (PPT) FILE FORMAT.

- INPUT OF PROPRIETARY INFORMATION:
  - PROPRIETARY INFORMATION MAY BE ENTERED ONLY FOR THE FOLLOWING ITEMS AND ONLY IN THOSE AREAS DESIGNATED FOR SUCH INPUT ON THE DARPA EXTRANET REPORTING PAGE
    - 1.2.2.1 DETAILED DESCRIPTION OF TECHNICAL APPROACH
    - 1.2.2.2 COMPARISON WITH CURRENT TECHNOLOGY
    - 3.1.2 TECHNICAL ACCOMPLISHMENTS THIS PERIOD
    - 3.2.1 PLANNED ACTIVITIES

- CLASSIFICATION: THE ENTIRE REPORT SHALL BE UNCLASSIFIED.

- INCLUDE THIS R&D PROJECT SUMMARY ON THE FINAL DD FORM 250.

Appendix B – Sample Quad Chart and Instructions

Company Name/Logo | **SAPIENT (Company Proposal Name)** | **BAA Control Number:**

Graphic Depiction

Performer:

DESCRIPTION / OBJECTIVES / METHODS

- Describe the new and unproven technology to be exploited
- From a technical perspective, why is this important to do now?
- Describe how the research will be conducted and how the technology will be tested (add scenarios, if applicable)

MILITARY IMPACT / SPONSORSHIP

- Describe the national security value and operational impact / improvement.
- Who is the potential military sponsor /user of the technical product or capability?

BUDGET & SCHEDULE

TASK	FY03	FY04	FY05

Budget ($M), per year

PM: Dr. Jonathan M. Smith